

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently amended): An image sensor unit comprising

a first photoconverter comprising a first array of first light receiving elements, the first light receiving elements having first imaging regions, the first photoconverter for photoelectrically converting light of a first light quality from a source image for outputting signals by photoelectric conversion

a second photoconverter distinct from the first photoconverter comprising a second array of second light receiving elements, the second light receiving elements having second imaging regions different from the first imaging regions of the first light receiving elements, the second photoconverter for photoelectrically converting light of a second light quality from the source image for outputting signals by photoelectric conversion.

Claim 2 (Original): The image sensor unit of claim 1 wherein

the first light receiving elements have a first dimension in a first direction

the second light receiving elements have a second dimension in the first direction

the first dimension is different from the second dimension.

Claim 3 (Original): The image sensor unit of claim 2 wherein the first direction is a main scanning direction.

Claim 4 (Original): The image sensor of claim 2 wherein the first direction is a sub-scanning direction.

Claim 5 (Original): The image sensor unit of claim 2 wherein

the first light receiving elements have a third dimension in a second direction
the second light receiving elements have a fourth dimension in the second direction
the third dimension is different from the fourth dimension.

Claim 6 (Original): The image sensor unit of claim 5 wherein

the first dimension is larger than the second dimension
the third dimension is larger than the fourth dimension

Claim 7 (Original): The image sensor unit of claim 1 wherein

the first imaging region is determined according to a first sensitivity of the first light receiving elements to the first light quality

the second imaging region is determined according to a second sensitivity of the second light receiving elements to the second light quality.

Claim 8 (Original): The image sensor unit of claim 1

the first array comprising a first number of first light receiving elements
the second array comprising a second number of second light receiving elements
the second number is larger than the first number.

Claim 9 (Original): The image sensor unit of claim 1 wherein

the first light quality comprises a first color
the second light quality comprises black and white

the image sensor comprises a third photoconverter comprising a third array of third light receiving elements, the third light receiving elements having third imaging regions, the third photoconverter for photoelectrically converting light of a third light quality from the source image for outputting signals by photoelectric conversion, the third light quality comprising a second color different from the first color

the image sensor comprises a fourth photoconverter comprising a fourth array of fourth light receiving elements, the fourth light receiving elements having fourth imaging regions, the fourth

photoconverter for photoelectrically converting light of a fourth light quality from the source image for outputting signals by photoelectric conversion, the fourth light quality comprising a third color different from the first color and the second color.

Claim 10 (Original): The image sensor unit of claim 9 wherein the first imaging region, the third imaging region and the fourth imaging region have a substantially equal area.

Claim 11 (Original): The image sensor unit of claim 8 wherein the second number is an integer multiple of the first number.

Claim 12 (Original): The image sensor unit of claim 9 further comprising an output constitution capable of outputting electric signals generated by photoelectric conversion of the monochrome light receiving element array and electric signals generated by photoelectric conversion of the color light receiving element arrays serially in parallel.

Claim 13 (Original): An image reading apparatus including the image sensor unit of claim 9 and further having a color mode, wherein the image sensor outputs color signals and monochrome signals.

Claim 14 (Original): The image reading apparatus of claim 13 further comprising a color signal correction unit for improving a quality of the color signals using information in the monochrome signals.

Claim 15 (Original): The image reading apparatus of claim 14 wherein the color signal correction unit is further for improving the color signals' resolution.

Claim 16 (Original): The image reading apparatus of claim 14 wherein the color signal correction unit is further for improving the color signals' gradation.

Claim 17 (Original): The image reading apparatus of claim 14 wherein the color signals are signals of three primary colors and the color signal correction unit is for converting the three primary color signals and the monochrome signals to data indicating color characteristics.

Claim 18 (Currently amended): A process for producing image signals comprising

- providing a first photoconverter comprising a first array of first light receiving elements, the first light receiving elements having first imaging regions
- providing a second photoconverter distinct from the first photoconverter comprising a second array of second light receiving elements, the second light receiving elements having second imaging regions different from the first imaging regions of the first light receiving elements
 - the first photoconverter photoelectrically converting light of a first light quality from a source image
 - the second photoconverter photoelectrically converting light of a second light quality from the source image
 - outputting first signals from the first photoconverter
 - outputting second signals from the second photoconverter.

Claim 19 (Original): The process for producing image signals of claim 18 wherein

- the first light receiving elements have a first dimension in a first direction
- the second light receiving elements have a second dimension in the first direction
- the first dimension is different from the second dimension.

Claim 20 (Original): The process for producing image signals of claim 19 wherein the first direction is a main scanning direction.

Claim 21 (Original): The process for producing image signals of claim 19 wherein the first direction is a sub-scanning direction.

Claim 22 (Original): The process for producing image signals of claim 19 wherein

- the first light receiving elements have a third dimension in a second direction

the second light receiving elements have a fourth dimension in the second direction
the third dimension is different from the fourth dimension.

Claim 23 (Original): The process for producing image signals of claim 22 wherein
the first dimension is larger than the second dimension
the third dimension is larger than the fourth dimension

Claim 24 (Original): The process for producing image signals of claim 23 wherein
the first imaging region is determined according to a first sensitivity of the first light
receiving elements to the first light quality
the second imaging region is determined according to a second sensitivity of the second light
receiving elements to the second light quality.

Claim 25 (Original): The process for producing image signals of claim 18 wherein
the first array comprises a first number of first light receiving elements
the second array comprises a second number of second light receiving elements
the second number is larger than the first number.

Claim 26 (Original): The process for producing image signals of claim 18 wherein the first light
quality comprises a first color and the second light quality comprises black and white, the process
further comprising
providing a third photoconverter comprising a third array of third light receiving elements,
the third light receiving elements having third imaging regions
providing a fourth photoconverter comprising a fourth array of fourth light receiving
elements, the fourth light receiving elements having fourth imaging regions
the third photoconverter photoelectrically converting light of a third light quality from the
source image, the third light quality comprising a second color different from the first color

the fourth photoconverter photoelectrically converting light of a fourth light quality from the source image, the fourth light quality comprising a third color different from the first color and the second color

outputting third signals from the third photoconverter

outputting fourth signals from the fourth photoconverter.

Claim 27 (Original): The process for producing image signals of claim 26 wherein the first imaging region, the third imaging region and the fourth imaging region have a substantially equal area.

Claim 28 (Original): The process for producing image signals of claim 27 wherein the second number is an integer multiple of the first number.

Claim 29 (Original): The process for producing image signals of claim 18, wherein the first signals are color signals and the second signals are monochrome signals, the process further comprising improving a quality of the color signals using information in the monochrome signals.

Claim 30 (Original): The process for producing image signals of claim 19 further comprising improving the color signals' resolution.

Claim 31 (Original): The process for producing image signals of claim 19 further comprising improving the color signals' gradation.

Claim 32 (Original): The process for producing image signals of claim 19 wherein the color signals are signals of three primary colors and the color signal correction unit is for converting the three primary color signals and the monochrome signals to data indicating color characteristics.

Claim 33 (Currently amended): A process for producing image signals comprising
receiving a first color image signal from a first color photoconverter for a first color
receiving a second color image signal from a second color photoconverter distinct from the
first color photoconverter for a second color

receiving a third color image signal from a third color photoconverter for a third color
receiving monochrome image signals from a monochrome photoconverter for black and
white

improving a quality of at least one of the first, second and third color signals using
information in the monochrome signals.

Claim 34 (Original): The process for producing image signals of claim 33 wherein the first color is
red, the second color is green and the third color is blue.

Claim 35 (Original): The process for producing image signals of claim 33, wherein the first, second
and third color image signals represent image information for a first number of pixels, and the
monochrome image signals represent image information for a second number of pixels, and the
second number is larger than the first number.

Claim 36 (Original): The process for producing image signals of claim 33 comprising improving the
quality by

obtaining brightness signals from the monochrome image signals
obtaining a first color difference signal from the first, second and third color image signals
obtaining a second color difference signal from the first, second and third color image signals
obtaining enhanced first color image signals from the brightness signals and the first color
difference signals
obtaining enhanced second color image signals from the brightness signals, the first color
difference signals and the second color difference signals
obtaining enhanced third color image signals from the brightness signals and the first color
difference signals.

Claim 37 (Currently amended): The process for producing image signals of claim 33 wherein the
enhanced first color image signals, second color image signals and third color image signals have
improved resolution over the first, second and third color image signals.

Claim 38 (Currently amended): The process for producing image signals of claim 33 wherein the enhanced first color image signals, second color image signals and third color image signals have improved gradation over the first, second and third color image signals.

Claim 39 (Currently amended): An image reading apparatus comprising
a first sensor which has a first sensitivity
a second sensor which has a second sensitivity lower than the first sensitivity
a control circuit which causes ~~as~~ g light receiving time of the first sensor to be shorter than a light receiving time of the second sensor.

Claim 40 (Currently amended): An image sensor unit comprising
a first sensor for photoelectrically converting light from a source image for outputting signals by photoelectric conversion and comprising
a first array of "n" light receiving elements having first imaging regions
"m" output terminals
a second photoconverter sensor distinct from the first senor for photoelectrically converting light from the source image for outputting signals by photoelectric conversion and comprising
a second array of "j" light receiving elements having second imaging regions
"k" output terminals
wherein m is greater than or equal to k if n is greater than j.

Claim 41 (Currently amended): An image reading apparatus comprising
a first sensor for photoelectrically converting light from a source image for outputting signals by photoelectric conversion and comprising a first array of "n" light receiving elements having first imaging regions
a second photoconverter sensor distinct from the first senor for photoelectrically converting light from the source image for outputting signals by photoelectric conversion and comprising a second array of "j" light receiving elements having second imaging regions
a first clock frequency for driving the first sensor

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a second clock frequency for driving the second sensor

wherein the first clock frequency is greater than the second clock frequency when $n > j$.